REMARKS

The Examiner is thanked for careful examination of the application and for the very useful telephone conferences with Applicants' attorney on November 1, 2005. In view of the conferences with the Examiner, several claims have been cancelled and others have been amended in order to render the claims in condition for allowance. In view of the foregoing amendments and the remarks that follow, the Examiner is respectfully requested to reconsider and withdraw the outstanding rejections.

Claim Objections:

In response to the claim objections, the identified claims have been reviewed and carefully amended to avoid the issues raised by the Office Action. Accordingly, the Examiner is respectfully urged to reconsider and withdraw the outstanding objections to the claims.

Art Rejections:

Claims 1-6, 22-30 and 34-36 have been rejected under 35 U.S.C. §103(a) as being unpatentable over DE 2118360, hereinafter *Nolan*, in view of GB 1107541, hereinafter *Shell*, and U.S. Patent No. 4,986,697, hereinafter *Lynch.* Claims 7-11 have been rejected under 35 U.S.C. §103(a) as being unpatentable over *Nolan*, in view of *Shell* and *Lynch* and further in view of the standard bearing design as documented by the U.S. Patent and Trademark Office classification definitions for Class 384, Bearings. Claims 12-14 have been rejected under 35 U.S.C. §103(a) as being unpatentable over *Nolan*, in view of *Shell* and *Lynch*, and further in view of the EP 000657670 A2, hereinafter *Brown*. Claims 15-18 and 31-33 have been rejected

under 35 U.S.C. §103(a) as being unpatentable over *Nolan*, in view of *Shell* and *Lynch* and further in view of the of U.S. Patent No. 3,555,835, hereinafter *Smith*.

Claims 1-6, 5-18, 22-33, and 34-46 have been rejected under 35 U.S.C. §103(a) as being unpatentable over *Nolan*, in view U.S. Patent No. 3,668,878, hereinafter *Jones*. Claims 7-11 have been rejected under 35 U.S.C. §103(a) as being unpatentable over *Nolan*, in view *Jones*, and further in view of the standard bearing design as documented by the U.S. Patent and Trademark Office classification definitions. Claims 12-14 have been rejected under 35 U.S.C. §103(a) as being unpatentable over *Nolan*, in view *Jones* as applied above in view of common knowledge in the art, and is documented by *Brown*.

In the telephone conference with the Examiner, the Examiner indicated that the method claims would likely more clearly distinguish over the art of record than the apparatus claims. Although Applicants are of the opinion that all of the previously presented claims are patentable, in order to expedite prosecution, several of the apparatus claims have now been cancelled. The remaining independent apparatus claims (claims 45 and 47) contain significant features not taught or suggested by the prior art, and which are addressed below in greater detail. Applicants reserve the right to file one or more continuation applications to the cancelled claims.

One of the objects of the present invention is to reduce the over stressing of pipelines when using a J-laying technique, as opposed to S-laying. The Examiner's attention is directed to the first two pages of the application, wherein the differences between S-laying and J-laying are carefully explained. In brief summary, in S-laying,

as the pipe leaves the vessel, the pipe curves downwardly off the stern of the vessel, toward the seabed, and then curves in the opposite direction at the bottom, thus forming an S shape. If the water is too deep, it is preferred to use J-laying techniques, wherein the pipe leaves the vessel at a much steeper angle, sometimes close to vertical. At the bottom, the pipe then curves away from the vessel, thus forming a J shape.

In conventional J-laying, the pipe has a shape of a J, and is therefore curved towards the bottom, but is straight towards the top. Thus, the pipe flows down the tower of the vessel along a straight path, whereas in S-laying, it is inevitable that the pipe will seek to assume a steeper angle of inclination immediately upon exiting the tower, which does not apply when J-laying which is conventionally carried out in deep water. If the water is too shallow, the pipeline may become over-stressed in a J-laying process if there is not enough room for the pipe to curve.

One of the objects of the present invention is to reduce the stress of pipelines when laid with a J-laying process, especially in shallow water. The invention enables a more effective use of J-laying in a wider range of conditions, including in shallow water. See page 2, lines 17-21 of the specification.

The present invention is based, at least in part, upon the appreciation that it may sometimes be desirable to J-lay in relatively shallow water, and it may then be desirable not to have any truly straight length of pipe, but rather to begin curvature of the pipe immediately below the tower and even within the tower. This idea of J-laying with a pipe curving within the length of the tower is not taught or suggested in the prior art.

Each of the art rejections relies on the primary reference *Nolan*. However, Applicants submit that *Nolan* teaches S-laying, and not J-laying. Specifically, the Examiner's attention is directed to Figure 12A, which shows the pipe assuming a steeper downward inclination at it leaves the tower, which is evidence that S-laying is occurring, rather than J-laying. In response to this argument being made in the paper filed on March 16, 2005, the Examiner stated that Nolan teaches that the angle at which the pipeline penetrates the water can be controlled, and that "thus inherently both s-laying and j-laying methods and apparatus are taught." However, this conclusion is legally and factually incorrect.

For a teaching to be inherent in a reference, the law is well established that the inherent feature must necessarily be present:

> Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient. [citations omitted.] If, however, the disclosure is sufficient to show that the natural result flowing from the operation as taught would result in the performance of the questioned function, it seems to be well settled that the disclosure should be regarded as sufficient. *Continental Can Co. USA, Inc. v. Monsanto Co.*, 948 F.2d 1264, 1269 (Fed. Cir. 1991)

Accordingly, the issue is not whether the apparatus of Nolan could be used for J-laying. The correct analysis is whether Nolan actually teaches J-laying. The fact that a reference can be modified is not a teaching of the modification and is not sufficient to establish prima facie obviousness. See § 2143.01 of the Manual of Patent Examining Procedures. Thus, absent some suggestion in the Nolan reference to actually use the Nolan device for J-laying there is no teaching or suggestion in Nolan of J-laying.

Each of the independent claims clearly indicate that the present invention relates to J-laying and not S-laying. In view of at least that language in the claims, Applicants submit that *Nolan* is not relevant to the present invention.

To further emphasize the difference between the present invention which relates to J-laying, and the applied prior art, which relates to S-laying, the claims make it clear that the guide rollers are located such that they allow some bending of the pipeline so that an angle of the pipeline with respect to a surface of the sea is shallower as the pipeline passes through the lower guide arrangement than the angle of the pipeline with respect to the surface of the sea as the pipeline passes through the tower assembly upstream of the lower guide arrangement. As set forth above, in S-laying, the pipe assumes a steeper angle of inclination as it passes from the tower.

One of the questions raised by the Examiner is whether or not most pipe-laying vessels are readily interchangeable between S-laying and J-laying. The equipment required for S-laying and J-laying is very different. For example, in J-laying you have to be able to accommodate very high tensions in the pipeline being laid. In the specification of the present application, reference is made to accommodating a force of about 525 metric tons (page 17, line 24). In S-laying there is much less tension to be accommodated. In Nolan the tension during laying is accommodated solely by the internal gripping element 66 (see Figure 12 and second paragraph of page 22 of the English language translation). Such a gripping element could not apply a force remotely similar to 525 metric tons. Thus, it is likely that Nolan would not be considered suitable for J-laying.

Although it is possible that some vessels may be so interchangeable, it is clear that many are not. The Examiner's attention is also directed to the article submitted herewith (attachment 1) which, at the bottom of column 1 on page 44, refers to S-lay vessels and J-lay vessels, implying that such vessels are different from each other.

Accordingly, all of the rejections based on Nolan should be withdrawn.

In addition to the distinction between S-laying and J-laying, there are other features of the present invention set forth in one or more of the various claims which distinguish the present invention from the prior art.

Trumpet-shaped lower guide arrangement:

The Examiner's attention is directed to claim 45 wherein the lower guide arrangement is defined as being substantially trumpet shaped, and the trumpet shape is defined such that the lower guide arrangement flares outwardly in the direction travel of the pipeline during laying, and the angle of flare continuously increases in direction of travel of the pipeline during laying.

With regard to the trumpet shaped feature, the Examiner relies upon Figures 3 and 12a-12d of *Nolan*. However, in *Nolan*, the outward flaring increases linearly with regard to the distance that the pipe travels, whereas the claims of the present application which relate to the trumpet shape indicate that the angle of flare continuously increases in the direction of travel of the pipeline during laying, i.e., in a

non-linear manner. See the following table, which illustrates the continuously increasing angle of flare:

Roller Set	***Spacing Between Circumferences of Diametrically Opposed Rollers (m)***	***Adjacent Roller Sets Considered***	***Y_{n-m} – ½ x Difference in Spacing (lower set minus upper set (m)***
65A	X_A = 2.44		
65B	X_B = 3.54	65B and 65A	Y_{B-A} = 0.55
65C	X_C = 5.0	65C and 65B	Y_{C-B} = 0.73
65D	X_D = 6.79	65D and 65C	Y_{D-C} = 0.80
65E	X_E = 8.96	65E and 65D	Y_{E-D} = 1.09
65F	X_F = 11.48	65F and 65E	Y_{F-E} = 1.24

The data from the above table is illustrated in the sketch submitted herewith as attachment 2.

Accordingly, the prior art does not teach or suggest the trumpet shape of the lower guide arrangement, as now set forth in the claims. Support for the amendment can be found in original claim 5 and in the table on page 22 of the specification. This feature enables a less stressful transition of the pipeline into the sea than in the prior art.

Control Station and Operable Rollers:

New claim 47 defines a pipe laying vessel that includes, among other features, a plurality of sets of adjustable rollers for adjusting a position of the pipeline as it passes through the lower guide arrangement; means for monitoring forces applied to the pipeline by the adjustable rollers; piston and cylinder arrangements for operating the adjustable rollers; and a control station for receiving signals from the force monitoring means and for providing signals for the operation of the piston and cylinder arrangements for operating the adjustable rollers. Support for claim 47 may

be found at least in page 18, line 17 to page 20, line 2 and Figures 13, 17A, 17B, and 17C.

The cited prior art fails to show such a combination, and in particular a combination that includes the piston and cylinder arrangements for operating rollers and the control station for operating the piston and cylinder arrangements. For example, Shell merely discloses that one can measure forces on a pipeline and that the vessel should be moved pursuant to the measured forces in order to alter the shape of the pipeline being laid. Shell does not teach the control of the piston, cylinder, and rollers, as claimed.

Lynch discloses a piston arrangement merely to act as a spring and to sense the position of a pipeline. See columns 7 and 8. However, there is no indication that the control station provides signals for the operation of the piston arrangements in order to operate the rollers. The piston arrangements in Lynch merely act as a spring, whereas the piston arrangement in claim 47 (among others) are operable to adjust the positions of the rollers to adjust the positions of the pipeline.

Jones merely discloses stingers which are provided with rollers and which are associated with load cells. Jones does not disclose the claimed combination that includes piston and cylinder arrangements for operating rollers.

Accordingly, claim 47 is also patentable.

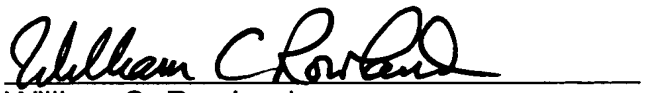
In view of the foregoing amendments and remarks, the Examiner is respectfully requested to reconsider and withdraw the outstanding rejections.

In the event that there are any questions concerning this response, or the application in general, the Examiner is respectfully urged to telephone the undersigned attorney so that prosecution of the application may be expedited.

Respectfully submitted,

BUCHANAN INGERSOLL PC

Date: November 2, 2005

By: 
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